

NUTRITION BULLETIN

Conducting the first Cambodia National Micronutrient Survey

By oxcart, by motorbike, by car, by plane and on foot, more than 130 enumerators, monitors and supervisors traveled throughout Cambodia, including to some of the most remote areas, to collect data from 15,000 households, which will provide insight into the magnitude and key determinants of micronutrient malnutrition in Cambodia. These data are very important for prioritizing health problems and directing future programming with the ultimate goal of reducing child and maternal morbidity and mortality.

Micronutrient malnutrition is increasingly being recognized as one of the main nutritional problems in the world because it affects more than 3 billion people and has serious, long-lasting consequences. It can increase morbidity and mortality among children and women of reproductive age, retard child growth and cognitive development, and reduce work productivity.

Vitamin A deficiency (VAD) and other nutrient deficiencies have been recognized as public health problems in Cambodia. A recent survey conducted by Helen Keller International (HKI) in five provinces showed that VAD and anemia were serious problems among preschool children and women. In addition, cases of xerophthalmia (clinical VAD) have been identified and reported regularly in the past year.

In light of the serious consequences of micronutrient malnutrition and the important need for information to advocate for and to formulate programs and policies to control malnutrition in Cambodia, HKI and the Royal Cambodian Government (RCG), with support from USAID, designed the first national micronutrient survey with the following objectives:

- 1) To determine the national prevalence of clinical and subclinical VAD and anemia among women and children.
- 2) To identify key determinants of vitamin A and iron deficiency among women and children in Cambodia.

- 3) To assess the current coverage and effectiveness of Cambodia's initiative to integrate vitamin A capsule distribution into routine immunization services.

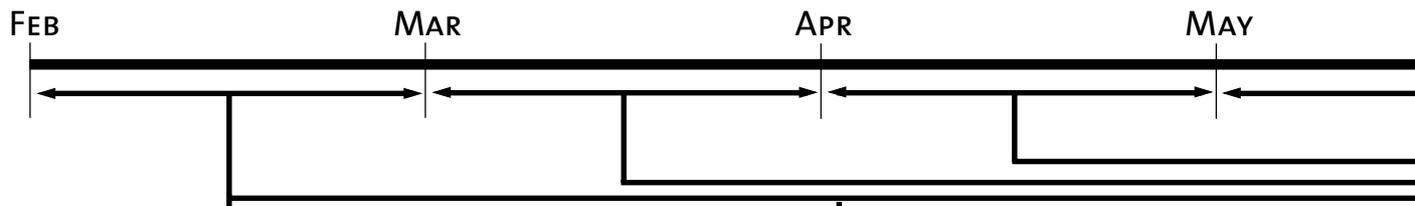
The survey, conducted from February to September 2000, was a collaborative effort of the RCG, HKI and other key institutions in Cambodia. The survey was designed along the UNICEF conceptual framework for malnutrition. HKI has successfully conducted micronutrient surveys in other countries in the Asia-Pacific region, which have been used to guide policy and develop programs. Based on these experiences, information was collected on different nutritional outcomes (e.g. anemia, VAD, stunting, women's body mass index), food consumption and vitamin A intake, demographics and socioeconomic status, and program adequacy. Using a random multistage cluster sampling design, data were collected from 15,000 households in 10 rural provinces by trained interviewers. Blood indicators (e.g. hemoglobin, serum retinol, malaria) were collected from a random subsample of these households.

The timeline that follows outlines the key activities and experiences in implementing the survey, describes the successful collaboration and highlights how challenges encountered in carrying out the survey were transformed into opportunities and successes.



Figure 1. Timeline of activities (February-September 2000)

2000



Survey design and initial preparations

- Advocacy for conducting the survey
- Worked with RCG and HKI/Asia-Pacific Regional Office in designing survey, including:
 - Development of conceptual framework
 - Identification of objectives
 - Design of sampling strategy
 - Selection of target groups
 - Finalization of survey protocol

Survey partners

- RCG/MOH: Department of Nutrition, National Maternal and Child Health Center involved in
 - Development of survey questionnaire
 - Training of field staff
- National Prevention of Blindness office
 - Assisted with training enumerators in detection of clinical signs of vitamin A deficiency
- Ministry of Planning
 - Assisted with logistical support and coordination in the provinces
- National Institute of Public Health
 - Contracted to assist with training of nurses and laboratory technicians for blood collection and related procedures
- National Malaria Center
 - Assisted with reading malaria slides
- USAID
 - Provided financial support to conduct the survey
 - Strongly advocated for the implementation of a 'programmatic' survey
- Given their substantial role in guiding and supporting health and nutrition activities in Cambodia, RCG/MOH engaged UNICEF and WHO in planning for the survey

Survey preparation

- Ethical review
- Manpower assignment including identification of technical support outside the country
- Terms of reference
- Initial plans for the survey in the country
- Budget preparation
- Plans for procurement of equipment (i.e. where, how to purchase)
- Workshops and meetings to determine participant responsibilities

Preparation of instruments

- HKI/Bangladesh technical assistance in developing questionnaire
- Pretested and finalized survey questionnaire
- Developed survey protocol for data collection and quality control

CHALLENGES IN THE FIELD

Necessity – the mother of innovation?

Obtaining serum from blood samples is no easy task, particularly in remote rural areas where blood collection teams do not have the luxury of a nearby laboratory. Serum is obtained from blood by means of a high-speed centrifuging process that, in a laboratory setting, would be performed by electrically-powered machines. In the field, where there is often a lack of electricity, HKI survey personnel had to resort to using hand-driven centrifuge devices from Bangladesh and Indonesia, which required operators to continually 'hand-crank' them.

The centrifuge devices were tried out a few times in field practice. Despite nearly an hour of operating the device, the blood collection teams found that it was almost impossible to obtain serum. Teams became discouraged and they grew worried about the effort required to hand-centrifuge and the prospect of getting poor results. It was, in fact, the case that serum could not really be obtained with these hand-driven devices.

In the face of a possible inability to obtain serum samples in the field, HKI/Bangladesh was consulted. Within a single day, the innovative Bangladesh office successfully converted the hand-driven devices to become battery-operated. Tests conducted on the converted devices proved they were effective in obtaining serum from blood samples. Enough of the devices were then converted and shipped to Cambodia in time for the implementation of the National Micronutrient Survey. Car batteries were purchased for the teams and these were relatively easy to charge, even in the most remote places. Thanks to the ingenuity of the HKI/Bangladesh's team of experts, the survey was carried out as planned.

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Next Steps

- Given the successful design and implementation of the first national micronutrient survey in Cambodia, the next steps are to analyze and interpret the data. Working closely with the RCG/MOH and other survey partners, HKI will help to ensure timely analysis and dissemination of the findings.
- Now that the findings of the survey will become available, they should be shared and discussed with key players at both national and provincial level in order to set priorities to control and prevent micronutrient deficiencies. The findings will first of all become available through the Cambodia Nutrition Bulletin and should then be discussed by different fora.
- A systems review of the vitamin A capsule program was conducted in tandem with the micronutrient survey to provide detailed information on the vitamin A capsule (VAC) program, postpartum VAC distribution, and use of iron supplements. The analysis of this assessment is also ongoing and findings will be linked to the survey results to help guide program modifications.

C A M B O D I A

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